

**Board on Coastal Engineering Research
Executive Session
Annapolis, MD
4-5 March 2009**

Minutes

The Board on Coastal Engineering Research met in Executive Session at The Maryland Inn, Annapolis, MD, on 4-5 March 2009.

Attendees included: MG Merdith W. B. Temple, President of the Board and Deputy Commanding General of Civil and Emergency Operations; BG Joseph Schroedel, Member and Commander, U.S. Army Engineer Division, South Atlantic (SAD); BG Todd T. Semonite, Member and Commander, U.S. Army Engineer Division, North Atlantic (NAD); Dr. Richard J. Seymour, Member, Scripps Institution of Oceanography; Dr. R. Bruce Taylor, Member, Taylor Engineering, Inc.; CPT Daniel A. Hayden, Headquarters, U.S. Army Corps of Engineers; Mr. Charles B. Chesnutt and Ms. Lynn R. Martin, Institute for Water Resources; Dr. James R. Houston, Director, Dr. Jeffery P. Holland, Deputy Director, COL Gary E. Johnston, Commander and Executive Secretary of the Board, and Ms. Joan Pope of the Engineer Research and Development Center (ERDC); Dr. William D. Martin, Director, Dr. Jack E. Davis, Dr. Donald T. Resio, and Ms. Sharon L. Hanks of the Coastal and Hydraulics Laboratory, ERDC; Mr. David R. Richards of the Information Technology Laboratory, ERDC; Mr. Larry J. Cocchieri, Mr. Ralph A. LaMoglia, and Mr. Joseph R. Vietri of NAD; Mr. Brad A. Bird of the U.S. Army Engineer Division, Northwestern; Mr. Kaiser E. Edmond of SAD; Mr. George W. Domurat of the South Pacific Division, Mr. John R. Headland of Moffatt & Nichol, and Professor David Kriebel, U.S. Naval Academy.

The agenda included discussion of the goal, objectives, and outcomes of the meeting; a review of pending action items; a background of the context of the letter to the Chief of Engineers; a MORPHOS Program Review/Road Map for the Future and Discussion, and the development of the letter or recommendations to the Chief of Engineers.

MG Merdith W. B. Temple welcomed the group and led the discussion pertaining to the goal, objectives and outcomes, which were to develop recommendations to the Chief of Engineers regarding the importance of MORPHOS model and other research needed as part of the Board's ongoing task of developing the concept of a "Systems Approach to Coastal Management" and to develop a plan of action for the Board's continuing work on the systems concept.

COL Gary E. Johnston reviewed pending action items, which were included in the goal, objectives and outcomes of this meeting. He also wanted to reset the focus on the systems approach and how the Board was going to achieve some products that would support coastal engineering across the Corps and to link into the campaign plan about what is achievable and what does this Board do and provide in support of that.

Mr. Charles B. Chesnutt provided the background for the context of the letter to the Chief of Engineers, regarding MORPHOS, in particular.

Drs. James R. Houston and Donald T. Resio gave presentations pertaining to MORPHOS. Dr. Houston presented the background and strategically where the program needs to go. He discussed the campaign plan for civil works. There is a significant goal related to systems, and R&D needs to support

that because without some technology the Corps cannot meet that goal, which revolves around MORPHOS and other aspects of the systems approach. Dr. Resio stated that MORPHOS is an integral system of tools applicable to a wide range of projects by a diverse community of users. He presented what ERDC is doing and what ERDC is going to produce in the next year and a half. Following the presentations by Drs. Houston and Resio, there was discussion by the group.

The afternoon was devoted to the development of the letter to the Chief of Engineers with recommendations by the Board.

On 5 March 2009, the letter to the Chief of Engineers was finalized and signed by Board members present. (See attached.)

Action items from the Executive Session were: 1) Develop an R&D Implementation Plan (I Plan) to address the recommendations contained in the letter to the Chief; 2) Develop recommendations on how to manage and archive model output; 3) Present data gap analysis input for I Plan; 4) Crosswalk with other pertinent advisory boards on how to interact in support of the I Plan; and 5) Formalize a Board Working Group that includes a senior coastal representative from each Major Support Command.

Before adjournment, the Board discussed the future meeting structure. It was determined that there would be one full meeting in the spring/summer of the year and one executive session in the fall of the year with a possible VTC prior to the full meeting in the spring/summer.

COL Johnston adjourned the Executive Session.



DEPARTMENT OF THE ARMY
COASTAL ENGINEERING RESEARCH BOARD
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REPLY TO
ATTENTION OF

CEERD-HV-Y

13 March 2009

MEMORANDUM FOR Chief of Engineers

SUBJECT: Recommendations of Coastal Engineering Research Board

1. After the Coastal Engineering Research Board (CERB) meetings, the Board periodically provides you with recommendations for coastal engineering research, and recently, on the broader subject of the systems approach to dealing with coastal issues. This letter provides our most recent thinking and recommendations regarding the implementation of the systems-based approach and the research program necessary to support that implementation. The Board herein affirms and summarizes the observations and findings over the last few years of the CERB. The recommendations support several strategic initiatives, as well as the US Army Corps of Engineers (USACE) Campaign Plan.

2. STRATEGIC END: Influence Water Resources Policy (national level) in order to ensure clarity of strategic guidance and resources. This will lead to holistic solutions for water resources challenges by using state-of-the-art, well-recognized interoperable modeling and data capabilities that seamlessly link the inland and coastal systems interactively.

3. RECOMMENDATION: Capitalize on current successes and invest now in developing the means through USACE Research and Development (R&D) and collaborating partners to develop an implementation plan to achieve the ends stated above.

4. BACKGROUND:

- a. The CERB has been helping USACE to define the systems-based approach for many years, going back to its recommendations that initiated Regional Sediment Management, as well as risk-based approaches. In addition, the United States' Ocean Governance structure reinforces the USACE role as a Federal ocean agency. Some members within the US Congress have endorsed the need for systems-based approaches in USACE project decisions and budgeting. The

Corps' own internal strategic documents reinforce systems-based approaches. Hurricane Katrina clearly illustrated the inherent problems associated with past practices of not applying such approaches and reinforced the need for systems-based approach solutions (structural and non-structural systems, people, and communications). Widespread recognition of climate change impacts further reinforces the need for system-scale adaptive approaches.

- b. A number of years ago, the Board recommended that the Engineer Research and Development Center (ERDC) develop a numerical model of the coastal zone that accurately replicates the hydrodynamics of waves, currents, tides, and storm surges in the nearshore. The Board also requested that the model be able to predict the three-dimensional morphological changes to the shape of the shore.
 - c. The development of Modeling Relevant Physics of Systems (MORPHOS) was thus initiated in 2005. R&D successes in the System-Wide Water Resources Research Program (SWWRP) and MORPHOS modeling systems and ongoing efforts in Actions for Change, further provide a solid foundation on which to build systems capabilities. However, we need additional technology, policy, and guidance to get there.
5. The WAY to influence water resources policy at the national level is to first achieve a broader consensus on the need for credible and transparent water resource system-scale tools and modeling capabilities. These technologies must be properly vetted and supported by comprehensive data collection and protocols. They must also be sufficiently flexible to accommodate unknowns associated with climate change, sea-level rise, and evolving water resource demands. The Board strongly supports the need to develop these technologies and an implementation plan that will ensure support of USACE Campaign Plan Goals 2 and 4. Once the science and technology is properly vetted and applied, the technologies produced by these efforts can then be used to demonstrate system-wide, regional, and national benefits. This would lead to broad-level acceptance and support by policy makers at all levels.

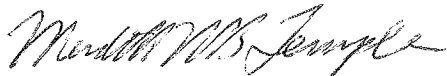
6. The MEANS to achieve the above is a combination of R&D and extensive leveraging with external partners. Shared knowledge and capabilities will both maximize resources and ensure interagency acceptance in the accomplishment of the following:

- a. Updating and resourcing of our training, guidance, and demonstrations (training the organization to “think” system).
- b. Improving data management (collection, mining, monitoring, measurements, and models).
- c. Creation and improvement of linkages among inland, estuarine, and coastal technologies and within the coastal technology suite (adding new tools and capabilities).
- d. Improving process descriptions to include longer-term morphological evolution and ecosystem science.
- e. Improving modeling and assessment tools.
- f. Developing a comprehensive risk methodology that is consistent across business lines and agency applications.
- g. Developing an improved and consistent alternative analysis and decision support approach (tools, methods, and budget for all phases-planning, engineering, construction, and operation and maintenance).

With an allocation of approximately \$12 million per year over 5 years (totaling \$60 million), we can achieve these goals. The resources to support this investment are available within historical R&D levels, and the work could be started as early as FY11. Multiple spirals of science and technology development will be produced to advance coastal system technologies (including water quality, sediment, and ecology) and the linkages between coastal and inland analytical frameworks. Development of the described implementation plan would be the responsibility of the R&D Directorate in coordination with the Civil Works Directorate.

7. SUMMARY: The CERB has dedicated many meetings over the last 4 years in reviewing the state of the technology, USACE practices, and the opportunities offered by utilizing system-based approaches to address both coastal and inland water resource challenges. Based upon our deliberations we recommend that USACE develop an implementing plan to advance an integrated suite of system level coastal technologies (including science and technology understandings, data management, modeling and technology transfer). This plan should also include the linkages between these coastal technologies and the inland technology suite currently under development. We believe the resources, collaborative efforts, and talent required to accomplish the R&D and capabilities described above will enable USACE to more effectively influence national water resources policy.

The Coastal Engineering Research Board Members:



MERDITH W. B. TEMPLE
MG, US Army
President



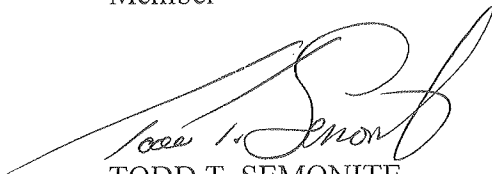
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